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Original Research Article

Evaluation of maternal-fetal outcomes, clinical manifestations, prevalence and associated factors of uterine fibroids during pregnancy: a study in a tertiary care hospital

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ABSTRACT

Background: Uterine fibroids, noncancerous growths arising from the smooth muscle cells of the uterus, are prevalent benign tumors in women during their reproductive years. Despite many pregnancies proceeding without complications, literature suggests an elevated risk during pregnancy, prompting the study to assess delivery modes in pregnant individuals with a fibroid uterus. The study aims to assess maternal-fetal outcomes, clinical manifestations, prevalence and associated factors of uterine fibroids during pregnancy.

Methods: This cross-sectional study, conducted at Shaheed Monsur Ali Medical College, Dhaka from 2018 to 2022, involved 80 pregnant women receiving antenatal care. Before the examination, informed consent was obtained, and participants signed the informed consent form on the examination day. Inclusion criteria comprised individuals aged 21 to 40, or >40 with a gestational age between 33 to 38 weeks, having single or multiple uterine fibroids exceeding 3/4 cm in size. Informed consent was obtained, and data collection included demographics, medical history, and ultrasound reports to assess uterine fibroids, analyzed using SPSS version 20.

Results: The study involving 80 patients with uterine fibroids reveals that the majority fall within the 31-35 age range, with a balanced urban-rural residency split. Muslim patients are predominant, and educational backgrounds show a nearly equal distribution between literate and illiterate individuals. Most patients have a BMI between 25-30 kg/m² or >30 kg/m². Submucosal fibroids are the most prevalent type (41.25%), mainly located in the fundus (33.75%). Caesarean section is the primary delivery mode (57.50%), with Fetal Distress being the leading indication for emergency Caesarean sections (30.00%).

Conclusions: The study reveals the intricate challenges in managing pregnancies with uterine fibroids, highlighting potential risks, including spontaneous miscarriage. The emphasis on mode of delivery and detailed fibroid assessments offers valuable insights for clinicians navigating this complex patient population.

Keywords: Uterine fibroids, Ultrasonography, Pedunculated, Hypertension, Fetal distress

INTRODUCTION

Fibroids are noncancerous growths originating from the smooth muscle cells of the uterus. They represent the most common benign tumors observed in women during their

reproductive years. While the majority of women with uterine fibroids experience normal pregnancies, literature data indicate an increased risk of spontaneous miscarriage, placental abruption, premature rupture of membranes, fetal malpresentation, caesarean delivery, and postpartum

hemorrhage, along with a potential association with hysterectomy.^{1,2} They may be asymptomatic or cause a range of severe and chronic symptoms. The most common presenting symptom is heavy menstrual bleeding, which can lead to anemia and fatigue and painful periods.³⁻⁶

The prevalence of uterine fibroids during pregnancy is on the rise, attributed to couples' inclination to postpone their first pregnancy until the age of 30. Intramural and subserosal fibroids measuring less than 3 cm are generally considered clinically insignificant. Pregnancies involving uterine fibroids are classified as high-risk pregnancies. While many pregnancies with a fibroid uterus proceed without complications, there is a possibility of serious issues arising during pregnancy, contingent on factors such as the size, site, and location of the fibroid.⁷

Our study was aimed to determine the mode of delivery in pregnant obstetric population with fibroid uterus presenting in patients. In our study, the mode of delivery of pregnancy with uterine fibroid was dependent on the size, and number of fibroids that was comparable to other study.⁸ Uterine fibroids (UFs) contribute significantly to hospitalizations for gynecological disorders and stand as a leading cause for hysterectomy. Limited knowledge exists regarding risk factors for uterine fibroids. Consequently, this study seeks to investigate the prevalence of risk factors associated with uterine fibroids at Shaheed Monsur Ali Medical College, Dhaka.

METHODS

This study was conducted as a cross-sectional study involving pregnant women receiving antenatal care at Shaheed Monsur Ali Medical College, Dhaka from 2018 to 2022. Sample size of the study is 80. Before the study, informed consent was obtained from all subjects. On the examination day, participants were permitted to sign the Informed Consent Form. Alongside collecting fundamental data on age, altitude, weight, and education, we utilized Ultrasonography reports to evaluate the location, size, and number of fibroids.

The questionnaire also inquired about smoking habits, caffeine intake, parity, the health status of participants (including hypertension and diabetes mellitus), and the presence of fibroids in the family history of the patient. The inclusion criteria for this study encompassed individuals aged between 21 to 40 years, and >40 and with a gestational age falling within the range of 33 to 38 weeks. Eligible participants had either single or multiple uterine fibroids exceeding 3/4 cm in size and were experiencing patients.

These criteria were established to focus on a specific demographic within the specified gestational period and with defined characteristics related to uterine fibroids and the mode of patients. The fibroids were identified, and their diameter was measured in three perpendicular planes. Two measurements were taken, and the fibroid diameter

was averaged. Subsequently, the data were mapped onto a uterine diagram. The fibroids were then categorized based on location (fundus, corpus, isthmus, or cervix), position (anterior, posterior, right, left), and type (submucous - any fibroid in contact with or distorting the uterine cavity without identifiable myometrium between the fibroids and the endometrium, intramural - within the myometrium, neither distorting the contour nor the cavity, subserous - distorting the external contour of the uterus and pedunculated - attached to the uterus with an identifiable stalk). Data from the patients were gathered for utilization in this study. The collected data underwent analysis using SPSS version 20.

RESULTS

The (Table 1) provides an overview of the characteristics of 80 patients in the study. The age distribution shows that the majority of patients are between 31 and 35 years old (28.75%), followed by those aged 26-30 (21.25%). In terms of residency, the patient population is almost evenly divided between urban (48.75%) and rural (51.25%) areas. Regarding religious affiliation, the majority of patients are Muslim (53.75%), followed by Hindu (42.5%), and a small percentage are Christian (3.75%). The educational background of patients indicates a relatively balanced distribution, with 46.25% being literate and 53.75% classified as illiterate.

Table 1: Demographic characteristics of patients (n=80).

Parameters	N	%
Age (years)		
21-25	14	17.5
26-30	17	21.25
31-35	23	28.75
36-40	15	18.75
>40	11	13.75
Residency		
Urban	39	48.75
Rural	41	51.25
Religion		
Muslim	43	53.75
Hindu	34	42.5
Christian	3	3.75
Education		
Literate	37	46.25
Illiterate	43	53.75

Table 2: BMI of the patients (n=80).

BMI (kg/m ²)	N	%
18-25	18	22.5
25-30	27	33.75
>30	35	43.75

The (Table 2) presents the Body Mass Index (BMI) distribution among the 80 patients in the study. The

majority of patients fall into the BMI range of 25-30 kg/m², comprising 33.75% of the population, followed by those with a BMI of >30 kg/m², accounting for 43.75%.

Patients with a BMI of 18-25 kg/m² constitute 22.5% of the total. In (Figure 1) distribution of different types of fibroids among the 80 patients in the study. Submucosal fibroids are the most prevalent, constituting 41.25% of cases, followed by subserosal fibroids at 35%. Intramural fibroids make up the remaining 23.75%.

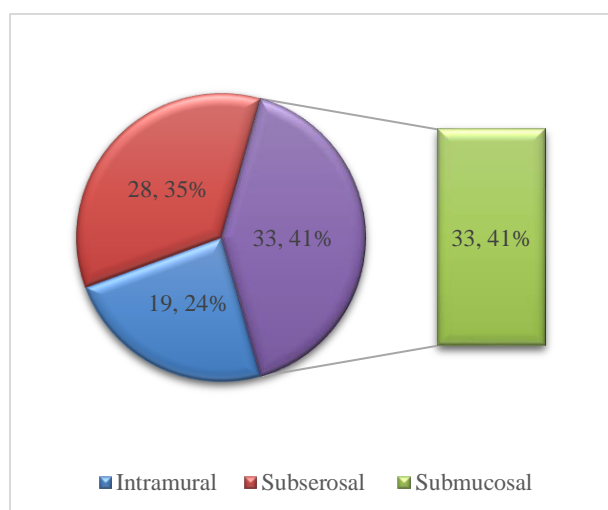


Figure 1: Types of fibroids.

The (Table 3) provides an overview of the clinical features associated with the location of uterine fibroids among 80 patients in the study. The distribution reveals that the most common location is the fundus (33.75%), followed by the cervix (28.75%) and pedunculated fibroids (22.50%). Fibroids located in the tubes constitute 15.00% of cases. The (Table 4) outlines the mode of delivery among 80 patients with uterine fibroids. The majority of deliveries were through Caesarean section, accounting for 57.50%, while 42.50% of patients had a spontaneous vaginal delivery.

Table 3: Clinical features of uterine fibroids (n=80).

Location of fibroids	N	%
Fundus	27	33.75
Pedunculated	18	22.50
Cervix	23	28.75
Tubes	12	15.00

Table 4: Mode of delivery with uterine fibroids (n=80).

Mode of delivery	N	%
Caesarean section	46	57.50
Spontaneous vaginal delivery	34	42.50

The (Table 5) presents the reasons for conducting emergency Caesarean sections in individuals with fibroids

among the 80 patients in the study. The most common indication was fetal distress (30.00%), followed by labor dystocia (26.25%), cord prolapse (23.75%), and placental abruption (20.00%).

The (Table 6) illustrates the absence of a significant impact of various risk factors in patients with uterine fibroids, as indicated by their respective p values. Hypertension, family history, caffeine intake, and diabetic condition exhibit p values of 0.97, 0.29, 0.42, and 0.51, respectively, suggesting a lack of statistically significant association between these factors and the occurrence of uterine fibroids in the studied population of 80 patients.

Table 5: Reasons for performing an emergency Caesarean section in individuals with fibroids (n=80).

Indication	N	%
Fetal distress	24	30.00
Placental abruption	16	20.00
Labor dystocia	21	26.25
Cord prolapses	19	23.75

Table 6: The lack of significant impact of risk factors linked to patients with uterine fibroids (n=80).

Risk factor	P value
Hypertension	0.97
Family history	0.29
Caffeine intake	0.42
Diabetic condition	0.51

DISCUSSION

Uterine myomas or fibromyomas originate from the smooth muscle of the myometrium, representing a slowly growing, benign tumor. Uterine fibroids are the most prevalent benign tumors affecting the female genital tract. They occur in 30-70% of females in their reproductive ages. These tumors have been implicated as a risk factor for increased caesarean section in pregnant women.⁹ In our study, the age distribution shows that the majority of patients are between 31 and 35 years old (28.75%), followed by those aged 26-30 (21.25%). In terms of residency, the patient population is almost evenly divided between urban (48.75%) and rural (51.25%) areas. Regarding religious affiliation, the majority of patients are Muslim (53.75%), followed by Hindu (42.5%), and a small percentage are Christian (3.75%). These detections were under the previous study reports that the presence of this uterine fibroid condition was more frequently seen in the 40-44 years, age group.¹⁰

In our study, the majority of patients fall into the BMI range of 25-30 kg/m², comprising 33.75% of the population, followed by those with a BMI of >30 kg/m², accounting for 43.75%. Patients with a BMI of 18-25 kg/m² constitute 22.5% of the total. From another study we know, Body weight of 70 kg or more denotes a nearly three-fold augmented risk of incidence of fibroids

compared with a body weight of 50 kg.¹¹ Raised BMI has a more influence on the risk of the incidence of fibroids after the age of 18, if it is higher than 20 kg/m². Its supreme effect has been seen between 27.5 kg/m² and 29.9 kg/m².¹²

In our study, submucosal fibroids are the most prevalent, constituting 41.25% of cases, followed by subserosal fibroids at 35%. Intramural fibroids make up the remaining 23.75%. In another study we found that myomas have been associated with an increased risk for fetal malpresentation (OR 2.9; 95% CI, 2.6-3.2), caesarean birth (OR 3.7; 95% CI, 3.5-3.9), preterm delivery (OR 1.5; 95% CI, 1.3-1.7) especially for subserous and submucosal fibroids, premature rupture of membranes, pelvic pain, placental abruption, dysfunctional birth, dystocia, and postpartum hemorrhage.¹³⁻¹⁶ In our study, the distribution reveals that the most common location is the fundus (33.75%), followed by the cervix (28.75%) and pedunculated fibroids (22.50%).

Fibroids located in the tubes constitute 15.00% of cases also the majority of deliveries were through Caesarean section, accounting for 57.50%, while 42.50% of patients had a spontaneous vaginal delivery. From a study, we know the presence of fibroids in pregnancy increases the likelihood of obstetric complications by 10%-30% while increasing 18 the frequency of caesarean section by up to 70%.¹⁷ In our study, the most common indication was fetal distress (30.00%), followed by labor dystocia (26.25%), cord prolapse (23.75%), and placental abruption (20.00%). From a study we found, failure to progress (39%) and fetal distress (38%), PROM (14%) were the most common indications, and placental abruption (3.3%) was the least common indication for emergency caesarean delivery.¹⁸ We evaluated the significance of additional risk factors that could potentially play a role in the occurrence of fibroids. Our analysis focused on three primary groups of factors: gynecological history, lifestyle, and medical history.

Limitations

One limitation of the study is its cross-sectional design, which restricts the establishment of causal relationships. Additionally, the sample size of 80 participants may limit the generalizability of the findings to a broader population.

CONCLUSION

The study conducted at Shaheed Monsur Ali Medical College, Dhaka aimed to explore the prevalence and risk factors associated with uterine fibroids in pregnant women. The findings underscore the complexity of managing pregnancies with uterine fibroids, indicating potential risks such as spontaneous miscarriage and other complications. The study's focus on mode of delivery and the detailed assessment of fibroid characteristics provides valuable insights for clinicians dealing with this patient population.

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